CLAIMS

1. A compliant spacer which, in use, is located between planar surfaces of two machine elements which are, in use, clamped together in an assembly, the spacer having a first generally planar face and a second oppositely facing generally planar face which is generally parallel to the first generally planar face, each of the first and second generally planar faces having a plurality of raised regions, the raised regions of the first face being offset with respect to the raised regions of the second face, so that as the two machine elements are clamped together with the spacer therebetween, the spacer deforms out of plane to maintain the clamping load in use, and each raised region including a bearing surface and edge regions where the raised region joins the respective planar face of the spacer, the bearing surface being generally planar and parallel to the first and second planar faces, and the edge regions of the raised regions melding smoothly into the respective planar face of the spacer without any sharp discontinuity.

2. A spacer according to claim 1 wherein the same number of raised regions are provided on each of the first and second planar faces, the raised regions on the first face being interposed between the raised regions of the second face.

3. A spacer according to claim 2 wherein the raised regions of the first planar face are mid-way between the raised regions of the second face.

4. A spacer according to claim 1 wherein more than two raised regions are provided on each of the first and second faces, namely more than five.

5. A spacer according to any one of the preceding claims wherein the spacer is generally annular.

6. A spacer according to claim 5 wherein each raised region extends circumferentially around the axis of the spacer.

7. A spacer according to claim 6 wherein each raised region extends circumferentially of the annular spacer for between 3° and 12° around the annulus, and preferably in the order of 6°.

8. A spacer according to claim 1 wherein the raised regions on each planar face each extend outwardly of the respective planar face by between 2% and 5% of the nominal thickness of the spacer between the planar faces.

9. A spacer according to claim 8 wherein the raised regions on each planar face each extend outwardly of the respective planar face by about 3% of the nominal thickness of the spacer between the planar faces.

10. A spacer according to claim 1 wherein the nominal thickness of the spacer between the planar faces is about 15mm.

11. An assembly of first and second machine elements which in use are clamped together with a spacer therebetween, the spacer having a first having a first generally planar face and a second oppositely facing generally planar face which is generally parallel to the first generally planar face, each of the first and second generally planar faces having a plurality of raised regions, the raised regions of the first face being offset with respect to the raised regions of the second face, so that as the two machine elements are clamped together with the

spacer therebetween, the spacer deforms out of plane to maintain the clamping load in use, and each raised region including a bearing surface and edge regions where the raised region joins the respective planar face of the spacer, the bearing surface being generally planar and parallel to the first and second planar faces, and the edge regions of the raised regions melding smoothly into the respective planar face of the spacer without any sharp discontinuity.

12. An assembly according to claim 11 wherein the first machine element is a part of a rotor head of a helicopter rotor system, and the second machine element is part of a gearbox of the helicopter, the assembly including a bearing which permits of relative rotation between the first and second machine elements, the spacer permitting the first and second machine elements to be clamped together to provide a loading force on the bearing.